JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 188, NO. 1, JANUARY 11, 2010

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83 Overexpression of the E2 ubiquitin–conjugating enzyme UbcH10 causes chromosome missegregation and tumor formation
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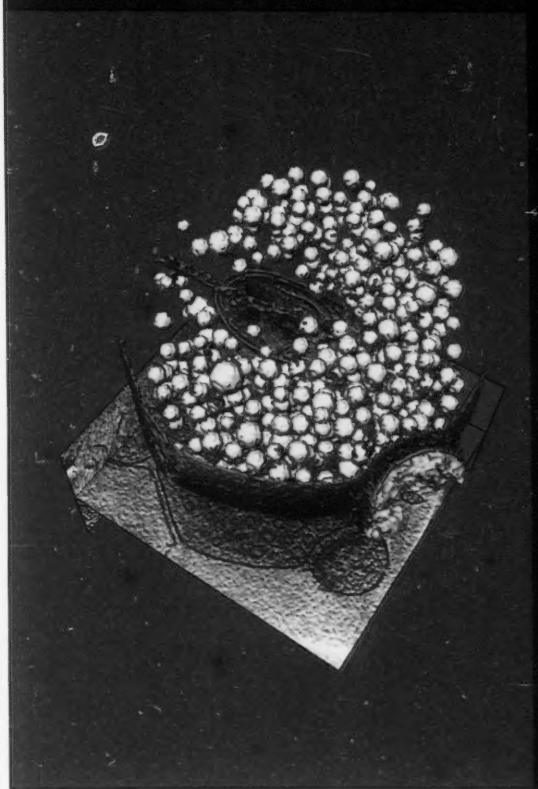

On the cover

Fernández-Busnadiego et al. present a three-dimensional view of the presynaptic cytomatrix using cryo-electron tomography. Synaptic vesicles (yellow) are linked to each other by short connector filaments (red) and docked at the plasma membrane (purple) by protein tethers (dark blue).
See page 145.

101 The conserved oligomeric Golgi complex is involved in double-membrane vesicle formation during autophagy
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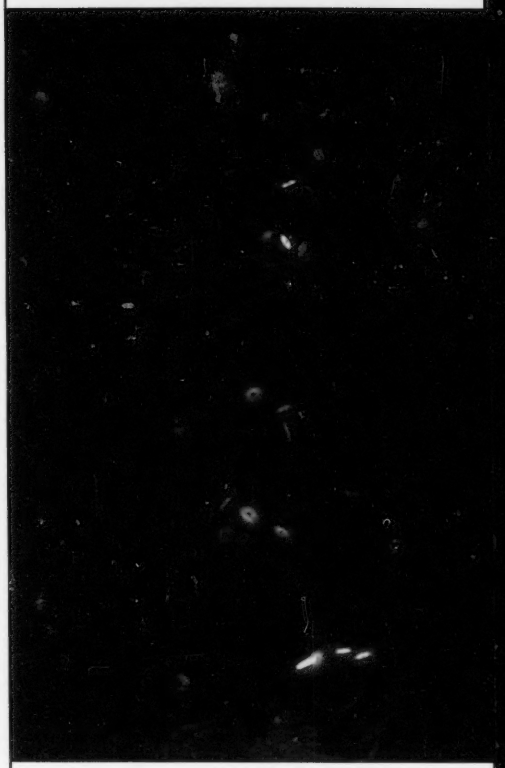
Feng Ye, Guiqing Hu, Dianne Taylor, Boris Ratnikov, Andrey A. Bobkov, Mark A. McLean, Stephen G. Sligar, Kenneth A. Taylor, and Mark H. Ginsberg



Hudson and Cooley demonstrate that the actin-binding protein Kelch associates with an E3 ubiquitin ligase to remodel the ring canals that connect oocytes and nurse cells in *Drosophila* egg chambers. Expression of a dominant-negative version of Kelch (red) causes F-actin (green) to accumulate and block the canal lumens.
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• Misfolded proteins go their separate ways
• FYCO1 gets autophagy on track
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237 GRASP55 and GRASP65 play complementary and essential roles in Golgi cisternal stacking
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253 FYCO1 is a Rab7 effector that binds to LC3 and PI3P to mediate microtubule plus end–directed vesicle transport
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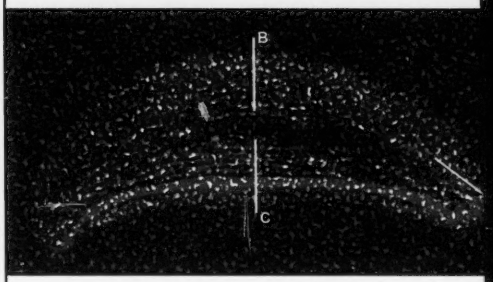
Thomson et al. reveal that cyclin-dependent kinases (Cdks) control the pattern of DNA duplication in S phase by activating clustered sites of DNA replication (red) in mammalian nuclei (blue). Inhibiting (center) or boosting (bottom) Cdk activity alters the number of these sites, known as replication factories.
See page 209.

271 Pincher-generated Nogo-A endosomes mediate growth cone collapse and retrograde signaling
Armela Joset, Dana A. Dodd, Simon Halegoua, and Martin E. Schwab

287 Force transmission in migrating cells
Maxime F. Fournier, Roger Sauser, Davide Ambrosi, Jean-Jacques Meister, and Alexander B. Verkhovsky



Fournier et al. investigate how migrating cells transmit force from the actin cytoskeleton (cyan) to the extracellular substrate (red). The mechanism of force transmission at the front of the cell is different from the mechanism at the back and sides.
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335 SOLO: a meiotic protein required for centromere cohesion, coorientation, and SMC1 localization in *Drosophila melanogaster*
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351 Mutual regulation of cyclin-dependent kinase and the mitotic exit network
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369 Proliferation of aneuploid human cells is limited by a p53-dependent mechanism
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383 Fate-determining mechanisms in epithelial–myofibroblast transition: major inhibitory role for Smad3
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401 Synaptobrevin N-terminally bound to syntaxin–SNAP-25 defines the primed vesicle state in regulated exocytosis
Alexander M. Walter, Katrin Wiederhold, Dieter Bruns, Dirk Fasshauer, and Jakob B. Sørensen

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An anaphase cell carrying a fluorescent mark (green) at a single chromosomal locus correctly segregates its sister chromatids (blue). Thompson and Compton find that the tumor suppressor p53 prevents cells with mis-segregated chromosomes from proliferating further.
See page 369.

415 Localized topological changes of the plasma membrane upon exocytosis visualized by polarized TIRFM
Arun Anantharam, Bibiana Onoa, Robert H. Edwards, Ronald W. Holz, and Daniel Axelrod

429 Autonomous right-screw rotation of growth cone filopodia drives neurite turning
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443 Autophosphorylation at serine 1981 stabilizes ATM at DNA damage sites
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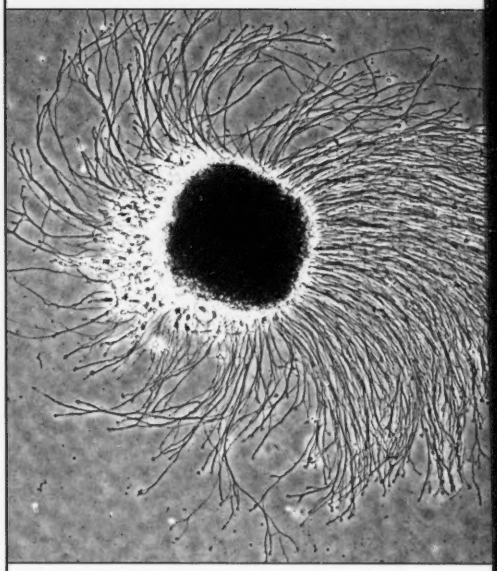

In the absence of environmental cues, the neurites of explanted hippocampal neurons inherently turn to the right when grown on 2D substrates. Tamada et al. show that this is due to the rotation of actin-based filopodia in the neurites' growth cones.
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515 Signal sequence insufficiency contributes to neurodegeneration caused by transmembrane prion protein
Neena S. Rane, Oishee Chakrabarti, Lionel Feigenbaum, and Ramanujan S. Hegde

527 Unconventional secretion of Acb1 is mediated by autophagosomes
Juan M. Duran, Christophe Anjard, Chris Stefan, William F. Loomis, and Vivek Malhotra

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On the cover

A collection of *Drosophila* wings resulting from alterations in the Notch signaling pathway, including inhibition of the E3 ubiquitin ligase Mindbomb and overexpression of the glycosphingolipid-synthesizing enzyme α4GT1. Hamel et al. reveal that glycosphingolipids promote the endocytosis and signaling activity of Notch ligands.

See page 581.

537 Unconventional secretion of *Pichia pastoris* Acb1 is dependent on GRASP protein, peroxisomal functions, and autophagosome formation
Ravi Manjithaya, Christophe Anjard, William F. Loomis, and Suresh Subramani

547 Amiloride inhibits macropinocytosis by lowering submembranous pH and preventing Rac1 and Cdc42 signaling
Mirkka Koivusalo, Christopher Welch, Hisayoshi Hayashi, Cameron C. Scott, Moshe Kim, Todd Alexander, Nicolas Touret, Klaus M. Hahn, and Sergio Grinstein

565 A Syd-1 homologue regulates pre- and postsynaptic maturation in *Drosophila*
David Owald, Wernher Fouquet, Manuela Schmidt, Carolin Wichmann, Sara Mertel, Harald Depner, Frauke Christiansen, Christina Zube, Christine Quentin, Jorg Körner, Henning Urlaub, Karl Mechtler, and Stephan J. Sigrist

581 Notch ligand activity is modulated by glycosphingolipid membrane composition in *Drosophila melanogaster*
Sophie Hamel, Jacques Fantini, and François Schweisguth

595 Anchorage of VEGF to the extracellular matrix conveys differential signaling responses to endothelial cells
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611 INCENP–aurora B interactions modulate kinase activity and chromosome passenger complex localization
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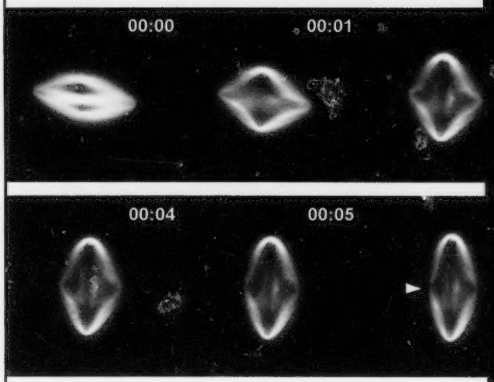

Gatlin et al. manipulate metaphase spindles with microneedles to probe the mechanical properties of the spindle matrix—a network of proteins that might work with microtubules and motor proteins to determine spindle size.
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Ryo Kawamura, Lisa H. Pope, Morten O. Christensen, Mingxuan Sun, Ksenia Terekhova, Fritz Boege, Christian Mielke, Anni H. Andersen, and John F. Marko

665 Kinetochore alignment within the metaphase plate is regulated by centromere stiffness and microtubule depolymerases
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681 The SUMO protease SENP6 is essential for inner kinetochore assembly
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693 The interphase microtubule aster is a determinant of asymmetric division orientation in *Drosophila* neuroblasts
Jens Januschke and Cayetano Gonzalez

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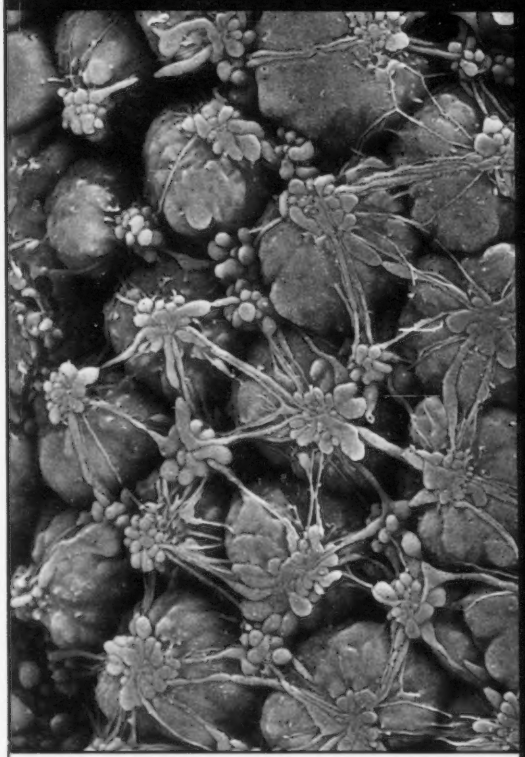


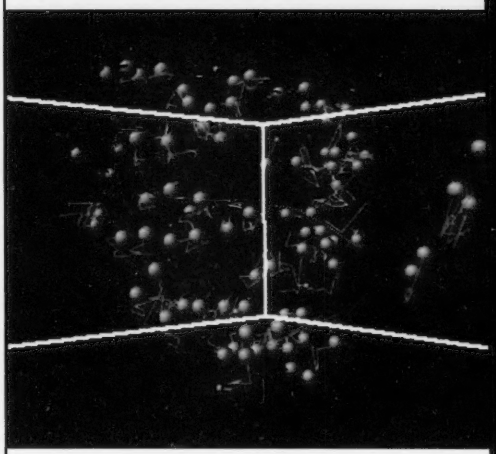
On the cover

Martin et al. show that adherens junctions transmit contractile forces between cells, generating tension in epithelial tissues that influences the shape of individual cells. When junctions are partially disrupted, the imbalance in tensile force tears cells apart, although they remain connected by thin membrane tethers.
See page 735.

707 Modularity of the Hrd1 ERAD complex underlies its diverse client range
Kazue Kanehara, Wei Xie, and Davis T.W. Ng

717 The novel endosomal membrane protein Ema interacts with the class C Vps–HOPS complex to promote endosomal maturation
Sungsu Kim, Yogesh P. Wairkar, Richard W. Daniels, and Aaron DiAntonio

735 Integration of contractile forces during tissue invagination
Adam C. Martin, Michael Gelbart, Rodrigo Fernandez-Gonzalez, Matthias Kaschube, and Eric F. Wieschaus



Jaqaman et al. analyze the dynamics of sister kinetochores and determine that their alignment at the metaphase plate is regulated by the stiffness of the links between them and by microtubule depolymerases.
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• Arf and Miz1 cause cells to lose their grip
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Voytek Okreglak and David G. Drubin

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779 Mammalian BLM helicase is critical for integrating multiple pathways of meiotic recombination
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791 Inner centromere formation requires hMis14, a trident kinetochore protein that specifically recruits HP1 to human chromosomes
Tomomi Kiyomitsu, Osamu Iwasaki, Chikashi Obuse, and Mitsuhiro Yanagida

809 Regulated targeting of protein phosphatase 1 to the outer kinetochore by KNL1 opposes Aurora B kinase
Dan Liu, Mathijs Vleugel, Chelsea B. Backer, Tetsuya Hori, Tatsuo Fukagawa, Iain M. Cheeseman, and Michael A. Lampson

821 ERO1-β, a pancreas-specific disulfide oxidase, promotes insulin biogenesis and glucose homeostasis
Ester Zito, King-Tung Chin, Jaime Blais, Heather P. Harding, and David Ron

833 The TWEAK–Fn14 system is a critical regulator of denervation-induced skeletal muscle atrophy in mice
Ashwani Mittal, Shephali Bhatnagar, Akhilesh Kumar, Estelle Lach-Trifilieff, Sandrine Wauters, Hong Li, Denys Y. Makonchuk, David J. Glass, and Ashok Kumar

851 Endogenous Bak inhibitors Mcl-1 and Bcl-x_L: differential impact on TRAIL resistance in Bax-deficient carcinoma
Bernhard Gillissen, Jana Wendt, Antje Richter, Anja Richter, Annika Müer, Tim Overkamp, Nina Gebhardt, Robert Preissner, Claus Belka, Bernd Dörken, and Peter T. Daniel

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On the cover

A mitotic cell shows incorrect attachments between spindle microtubules (green) and kinetochores (red) when the Aurora B kinase, which normally eliminates mis-attachments, is inhibited. Liu et al. reveal that protein phosphatase I is recruited to kinetochores to oppose Aurora B and stabilize correct microtubule binding.
See page 809.

863 The PI3K p110α isoform regulates endothelial adherens junctions via Pyk2 and Rac1
Robert J. Cain, Bart Vanhaesebroeck, and Anne J. Ridley

877 Myosin II activity regulates vinculin recruitment to focal adhesions through FAK-mediated paxillin phosphorylation
Ana M. Pasapera, Ian C. Schneider, Erin Rericha, David D. Schlaepfer, and Clare M. Waterman

891 Focal adhesions are sites of integrin extension
Janet A. Askari, Christopher J. Tynan, Stephen E.D. Webb, Marisa L. Martin-Fernandez, Christoph Ballestrem, and Martin J. Humphries

905 The Arf tumor suppressor protein inhibits Miz1 to suppress cell adhesion and induce apoptosis
Barbara Herkert, Anne Dwertmann, Steffi Herold, Mona Abed, Jean-Francois Naud, Florian Finkernagel, Gregory S. Harms, Amir Orian, Michael Wanzel, and Martin Eilers

919 Cargo- and adaptor-specific mechanisms regulate clathrin-mediated endocytosis
Marcel Mettlen, Dinah Loerke, Defne Yarar, Gaudenz Danuser, and Sandra L. Schmid

935 Fibroblast growth factor receptors 1 and 2 in keratinocytes control the epidermal barrier and cutaneous homeostasis
Jingxuan Yang, Michael Meyer, Anna-Katharina Müller, Friederike Böhm, Richard Grose, Tina Dauwalder, Francois Verrey, Manfred Kopf, Juha Partanen, Wilhelm Bloch, David M. Ornitz, and Sabine Werner

953 Joubert syndrome Arl13b functions at ciliary membranes and stabilizes protein transport in *Caenorhabditis elegans*
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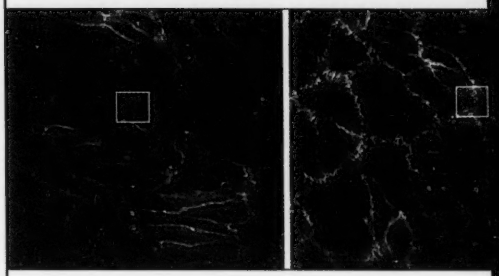

The PI3K subunit p110α increases vascular permeability in response to the inflammatory cytokine TNFα by regulating the tyrosine kinase Pyk2 and the small GTPase Rac at endothelial cell junctions. Unlike control cells (left), cells lacking p110α maintain their junctions after TNFα treatment (right).
See page 863.